

PORTABLE TERMINAL**CLAIM OF PRIORITY**

[0001] This application claims the benefit under 35 U.S.C. §119(a) of a Korean Patent Application filed in the Korean Intellectual Property Office on Sep. 14, 2009 and assigned Serial No. 10-2009-0086525, the entire disclosure of which is hereby incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention generally relates to a portable terminal. More particularly, the present invention relates to a folder-type portable terminal for enabling a user to conveniently use multimedia features.

[0004] 2. Description of the Related Art

[0005] In general, a portable terminal is a device that a user carries for a mobile communication service. Beyond the early stage of voice call or short message transmission, mobile communication services have been advanced to provide multimedia services, such as video, game, and interactive broadcasting services. Before these multimedia services are commercialized through portable terminals, portable terminals were mainly developed for portability, thus smaller and lighter device were the main target for manufacturers.

[0006] However, as the mobile communication services have been expanded to multimedia services, portable terminals designed for the purpose of voice call or short message transmission have limitations in allowing users to enjoy the multimedia services. That is, it is difficult to secure an adequate size of a display in a small hand held portable terminal, and such a display is typically not effective in viewing video or broadcast programs.

[0007] Accordingly, many efforts have been focused to allow users to enjoy multimedia services with a reasonable comfort through their portable terminals as well as to miniaturize portable terminals. As a result, the thickness of portable terminals has been significantly reduced, but the portability of portable terminals needs more improvements as a sufficient display size is still not available.

[0008] A larger display may be configured in a portable terminal by installing a display and a keypad in a single module using a touch screen, instead of installing a display and a keypad separately. Nonetheless, the portability of portable terminals and the convenience of multimedia services are in a trade-off relationship. There is much difficulty in fabricating portable terminals that is well balanced between portability and multimedia service convenience.

[0009] Therefore, portable terminals with an enhanced multimedia service function are typically designed with a bar type terminal having a touch screen. However, the bar-type portable terminal has limitations in its effectiveness to meet a variety of users' demands and preferences regarding the outward appearance of portable terminals.

SUMMARY OF THE INVENTION

[0010] An aspect of exemplary embodiments of the present invention is to address at least the problems and/or disadvantages and to provide at least the advantages described below. Accordingly, an aspect of exemplary embodiments of the present invention is to provide a portable terminal configured to be small but to include a display of a sufficient size, thus

enabling a user to conveniently enjoy a multimedia service while esthetically pleasing to a user.

[0011] Another aspect of exemplary embodiments of the present invention provides a portable terminal for satisfying various tastes and demands of users regarding the outward appearance of the portable terminal.

[0012] In accordance with an aspect of exemplary embodiments of the present invention, a portable terminal in which a hinge device provides a pair of hinge axes extended in parallel, a pair of folding cases are engaged with the hinge device and rotate upon one hinge axis of the hinge axes, respectively, and sliding housings are installed in the respective folding cases. The folding cases rotate in a folding direction or in an unfolding direction and interact with each other via the hinge device. When the folding cases rotate, the sliding housings slide on the folding cases. When the sliding housings are opened at 180° with respect to each other, one corner of the sliding housing comes in a close contact with another corner of other sliding housing.

[0013] The hinge device may include a cover member including a cover portion for covering one surface of the folding case in a folded state, and module installation portions formed at both ends of the cover portion for covering both side ends of the folding cases, and a hinge module installed on at least one of the module installation portions.

[0014] The hinge module may include a pair of first sun gears arranged upon the hinge axes, respectively and a pair of second sun gears arranged between the first sun gears, for making the first sun gears interact with each other. Alternatively, a pair of first sun gears arranged upon the hinge axes, respectively, and a timing belt for enabling the first sun gear to interact with each other. Also, the hinge module may include a pair of first sun gears arranged upon the hinge axes, respectively. The teeth of the first sun gears may be engaged with each other. When one of the first sun gear rotates, the other first sun gear may rotate.

[0015] The hinge module may further include an engagement plate for allowing the first sun gears to be rotatably engaged therewith, and a pair of guide grooves formed by partially cutting the engagement plate, and the portable terminal may further include guide protrusions formed at least one ends of the sliding housings. The guide protrusions may be engaged with the guide grooves. When the sliding housings rotate, the guide protrusions may move along an extended direction of the guide grooves.

[0016] The hinge module may further include a module groove formed on an inner surface of the module installation portion, and the hinge module may be accommodated in the module groove.

[0017] The portable terminal may further include a display installed in each of the sliding housings, and the displays may be kept in contact at the corners of the sliding housings.

[0018] The portable terminal may further include keys installed on outer surfaces of the sliding housings. When the folding cases and the sliding housings rotate, the keys may be opened or closed by one of the folding cases.

[0019] When the folding cases and the sliding housings are folded, the keys may be opened or exposed for operation. When the folding cases and the sliding housings are unfolded or opened, the keys may be hidden.

[0020] Each of the sliding housings may include an engagement portion formed by making a part of the sliding housing lower than the other parts of the sliding housing, and the